

REMARKS

Claims 1-6, 23, 28-32, and 35-39 are pending. Claims 7-22, 24-27, 33, and 34 have been canceled. The applicants respectfully request reconsideration and allowance of this application in view of the above amendments and the following remarks.

Claims 61-65, 67-69, 78, and 79 were rejected under 35 USC 112, second paragraph, as being indefinite due to the wording describing the gap or cavity. Claim 61 has been amended to recite that the pad is porous, which is considered to be definite. Therefore, the applicants respectfully request that this rejection be withdrawn.

Claims 44, 47-56, 58, and 74-77 were rejected under 35 USC 103(a) as being unpatentable over the article of Kikuchi *et al.* or the patent to Urushidani *et al.* in view of Kido or Towery *et al.* The applicants request withdrawal of this rejection for the following reasons.

When the SiC is polished by using the chromium (III) oxide, the chromium (III) oxide firstly operates as a catalyst in a formation of the oxide (SiO₂) by reaction with oxygen on the polishing surface of the SiC and around the polishing surface of the SiC. Because the oxide (SiO₂) that is formed by the catalysis of the chromium (III) oxide is much softer than the SiC, the oxide part of the SiC is polished by the chromium (III) oxide. That is, the chromium (III) oxide is used as a catalyst at first, and then is also used as an abrasive in polishing. By repeating the formation of the oxide (SiO₂) and the polishing, the SiC is polished by the chromium (III) oxide.

However, if only chromium (III) oxide is used for polishing the SiC, it is necessary to polish for a long time or to polish at a high pressure. In the present invention, by supplying the hydrogen peroxide water to the polishing surface of the SiC in addition to the chromium (III) oxide, the polishing is facilitated, and the polishing speed can be increased.

When the hydrogen peroxide water is supplied to the polishing surface, a large amount of oxygen is generated on the polishing surface or around the polishing surface of the SiC, and the oxygen concentration on the surface of the SiC is increased. Therefore, the oxygen to be joined with SiC is increased. Thus, the oxide (SiO_2) can be readily formed by catalysis of the chromium (III) oxide, and the polishing of the SiC due to the chromium (III) oxide is readily and effectively performed.

On the other hand, in the article to Kikuchi *et al.* or the patent to Urushidani *et al.*, only polishing of SiC using chromium (III) oxide is described. This is essentially the prior art mentioned in the background section of the application. See page 4, line 6, through page 6, line 7, of the specification. Therefore, in the method of Kikuchi *et al.* or Urushidani *et al.*, it is necessary to polish for a long time or to polish at a high pressure, as described above. The object of the present invention is to solve these problems, and improvement has been achieved by the claimed invention.

The patent to Towery *et al.* teaches the polishing of an uneven surface of a non-conductive layer (SiO_2) on a conductive layer (metal wire) provided on a silicon board. The method of Towery *et al.* is not for polishing the silicon board but is for polishing the non-conductive layer (SiO_2) on the conductive layer (metal layer). In Towery *et al.*, a combination between the hydrogen peroxide water and the chromium (III) oxide is referred to. However, in Towery *et al.*, because the SiO_2 , which is much softer than the chromium (III) oxide, is polished by the chromium (III) oxide, no reaction between the SiO_2 and the chromium (III) oxide occurs in theory even when hydrogen peroxide water is supplied. In this case, the chromium (III) oxide is not used as a catalyst for forming the oxide of the SiC, and the hydrogen peroxide water does not facilitate oxidation of the SiC. Accordingly, there is no motivation to combine the method of Towery *et al.* with the methods of Kikuchi *et al.* or Urushidani *et al.*.


Kido discloses metal polishing by using hydrogen peroxide water without using chromium (III) oxide. If the soft metal wiring of the Kido patent is polished by using chromium (III) oxide, the metal wiring may be broken. Accordingly, there is no a motivation to add chromium (III) oxide in the metal polishing method using the hydrogen peroxide water of Kido. In addition, the polished material in Kikuchi *et al.* and Urushidani *et al.* (SiC) and the polished material in Kido (metal) are completely different from each other. Therefore, the combination of Kido with Kikuchi *et al.* or Urushidani *et al.* is unobvious and improper.

Claim 57 was rejected under 35 USC 103(a) as being unpatentable over the article of Kikuchi *et al.* or the patent to Urushidani *et al.* in view of Kido or Towery *et al.* and further in view of Satake *et al.* Claim 57 depends indirectly on claim 44 and is considered to be patentable for the reasons given above with respect to the patentability of claim 44.

In view of the forgoing, the applicant respectfully submits that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the examiner is invited to contact the undersigned by telephone.

Please charge any unforeseen fees that may be due to Deposit Account No. 50-1147.

Respectfully submitted,


James E. Barlow
Reg. No. 32,377

Posz & Bethards, PLC
11250 Roger Bacon Drive, Suite 10
Reston, VA 20190
Phone 703-707-9110
Fax 703-707-9112
Customer No. 23400